

Set forth below is a clean copy of all the pending claims. Applicants request the clean copy of pending claims be entered.

**CLEAN COPY OF CLAIMS PENDING IN PATENT APPLICATION**

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22. An output choke for a D.C. arc welder having an inductance comprising a high permeability core having first and second pole pieces and an inductance controlling air gap, said first and second pole pieces each having an end surface, said air gap defined between said end surfaces of said first and second pole pieces, each end surface including two outer edges and an intermediate area positioned there between, each of said intermediate areas being substantially V-shaped, said outer edges of said end surfaces of said first and second pole pieces being connected together and a diamond shaped air gap is formed by said two intermediate areas, said air gap having a configuration which results in said inductance of said choke gradually changing with an output current of the welder without saturation in said air gap thereby eliminating inflection points during operation of said welder.

23. The output choke as defined in claim 22, wherein said diamond shaped air gap is substantially symmetrical.

24. The output choke as defined in claim 22, wherein said diamond shaped air gap is non-symmetrical.

25. The output choke as defined in claim 22, wherein said intermediate areas of said end surfaces of said first and second pole pieces having substantially the same shape.

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26. The output choke as defined in claim 22, wherein said intermediate areas of said end surfaces of said first and second pole pieces having a different shape.

27. The output choke as defined in claim 22, wherein said air gap is filled with a low permeability material.

28. The output choke as defined in claim 22, wherein said choke includes a winding for conducting welding current, said winding and said core has a sufficient size to prevent saturation at a weld current of at least about 100 amperes.

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29. An output choke for a D.C. arc welder having an inductance comprising a high permeability core having first and second pole pieces, an inductance controlling air gap, and a winding for conducting welding current, said first and second pole pieces each having an end surface, said air gap defined between said end surfaces of said first and second pole pieces, each end surface including two outer edges and an intermediate area positioned there between, at least one of said intermediate areas being substantially V-shaped, said air gap having a configuration which results in said inductance of said choke gradually changing with an output current of the welder without saturation in said air gap thereby eliminating inflection points during operation of said welder, said winding and said core having a size to prevent saturation at a weld current of at least  
10 about 100 amperes.

30. The output choke as defined in claim 29, wherein both intermediate areas being substantially V-shaped.

31. The output choke as defined in claim 29, wherein said diamond shaped air gap is substantially symmetrical.

32. The output choke as defined in claim 29, wherein said diamond shaped air gap is non-symmetrical.

33. The output choke as defined in claim 29, wherein said intermediate areas of said end surfaces of said first and second pole pieces having substantially the same shape.

34. The output choke as defined in claim 29, wherein said intermediate areas of said end surfaces of said first and second pole pieces having a different shape.

35. The output choke as defined in claim 29, wherein said outer edges of said end surfaces of said first and second pole pieces being connected together.

36. The output choke as defined in claim 29, wherein said air gap is filled with a low permeability material.

37. The output choke as defined in claim 29, wherein said air gap has a configuration that causes said inductance of said choke to gradually vary over a current range in an inverse relationship with a weld current.

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38. The output choke as defined in claim 29, wherein said end surfaces are spaced from one another.

39. The output choke as defined in claim 29, wherein said air gap between said end surfaces is substantially diamond shaped.